

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BO ANDERSSON

Appeal 2007-2805
Application 10/727,732
Technology Center 3700

Decided: November 19, 2007

Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

PATE, III, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-6. These are the only claims in the application. We have jurisdiction under 35 U.S.C. §§ 134 and 6.

The claimed invention is a check valve having a housing defining an inlet and an outlet. A spherical hollow ball is placed in the housing so that, absent fluid flow, the check valve closes the inlet. The hollow ball is filled with a plurality of

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spherical shock absorbing members.

Claim 1, reproduced below, is further illustrative of the claimed subject matter.

Claim 1

1. A ball check valve comprising:
 - a housing having walls defining a fluid inlet, a fluid outlet, and a chamber communicating with the inlet and with the outlet, the chamber including a fluid passageway;
 - a spherical hollow ball in said chamber having a diametric cross-sectional area larger than the area of the inlet, said spherical hollow ball being movable between a first, flow impeding position adjacent the inlet along a guide part to a second position spaced from the inlet and diverged from the fluid passageway to allow fluid to pass through the valve; and
 - a plurality of spherical shock absorbing members contained within said spherical hollow ball.

The references of record relied upon by the Examiner as evidence of obviousness are:

| | | |
|-------|--------------|---------------|
| Werra | US 3,105,516 | Dec. 4, 1961 |
| Brehm | US 5,427,352 | Jun. 27, 1995 |

Claims 1-6 stand rejected under 35 U.S.C. § 103 as unpatentable over Werra in view of Brehm.

Claims 1-5 are argued as a single group. Therefore, we pick representative claim 1 for consideration. Though claim 6 is ostensibly separately argued, the

arguments on page 9 of the Brief merely refer back to the arguments with respect to claim 1. Therefore, we consider claim 6 as also standing or falling with claim 1.

FINDINGS OF FACT

Werra discloses a ball check valve suitable for use in a dairy. The check valve has a housing 10, with an inlet flange 12 and an outlet flange 13. A chamber 11 communicates with the inlet and outlet. The chamber 11 is closed by a cap 15. See col. 1, l. 62 – col. 2, l. 4. Werra discloses a hollow metal ball 22 coated by a hard rubber or rubber-like substance acting as the valve member. See col. 2, ll. 5-8. Werra differs from the prior art, in that it does not show a plurality of spherical shock absorbing members contained within the hollow ball.

Brehm discloses an electromagnetically operated valve used to regulate pressure for an automatic transmission of a motor vehicle. Brehm discloses an inlet 55 and an outlet T, valve stem 58, valve cylindrical section 60, and a valve body that Brehm calls a bearing bolt 36. The hollow bearing bolt 36 encloses a chamber 70, which forms a closed compartment 72 filed with a number of individual bodies 73. See col. 5, ll. 7-40. The individual bodies 73 act as a damping mass 74 to dampen the motion of the bearing bolt or valve body 36 together with the magnetic armature disc 23. Note that Brehm discloses that the movement of the valve element 58, the bearing bolt or valve body 36, and the armature disc 23 is especially well damped when the impact losses during motion and especially pivotal motions of the individual spherical bodies 73 are as large as

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possible. See col. 5, ll. 28-40. This dynamic damping effect can be controlled by the suitable selection of the form, size, and impact number for the individual bodies 73. See col. 5, ll. 41-45. Brehm mentions lead shot or lead balls as one suitable material for the individual spherical bodies 73, which make up damping mass 74. Col. 5, l. 51.

ISSUE

The sole issue for our consideration on appeal is whether Appellant has established that the Examiner erred in rejecting claims 1-6 on the grounds of obviousness.

PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459,

467 (1966). *See also KSR*, 127 S.Ct. at 1734, 82 USPQ2d at 1391 (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”) The Court in *Graham* further noted that evidence of secondary considerations “might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” 383 U.S. at 18, 148 USPQ at 467.

In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,” *id.* at 1739, 82 USPQ2d at 1395, and discussed circumstances in which a patent might be determined to be obvious.

In particular, the Supreme Court emphasized that “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of *Hotchkiss*, 11 How. 248.” *KSR*, 127 S.Ct. at 1739, 82 USPQ2d at 1395 (citing *Graham*, 383 U.S. at 12, 148 USPQ at 464 (emphasis added)), and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its

actual application is beyond his or her skill.

Id. at 1740, 82 USPQ2d at 1396. The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

ANALYSIS

We will sustain the obviousness rejection on appeal. In our view, the addition of small spherical shock absorbing members or shock dampening members into the hollow ball of Werra to dampen vibration would have been obvious following the teaching of Brehm. This is the simple combination of prior art elements according to known methods to yield predictable results. See *KSR* 127 S.Ct. at 1739, 82 USPQ2d 1395.

Appellant argues that there is no teaching, suggestion, or motivation (TSM) for the combination of references. However, in *KSR* the Supreme Court held that a rigid application of such a mandatory formula as TSM was incompatible with its precedent concerning obviousness. See *KSR* at 1741, 82 USPQ2d at 1396. As noted above, a known work in one field of endeavor, such as damping valve body movement in electromagnetic valves, may prompt the variations of its use in the same or a different field of endeavor based on design incentives or other market forces. In this instance, the desire for damping and reducing physical shock is the design incentive for the combination of references. In our view, the presence of the small spherical shock absorbing members would have resulted in a predictable

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outcome, when such members are used in the hollow body disclosed in Werra.

Appellant argues that Werra uses moving liquid in spaces 25 and 24 to create a cushion. In our view, this is simply indicative that Werra has recognized the problem of valve member travel, vibration, and “bobbling back and forth”. While Appellant is correct that Brehm is not controlled or operated by fluid, this individual attack on the reference is not convincing when the rejection is based on § 103 of the statute. Again, we agree with Appellant that operation of Werra and Brehm are different. However, Brehm is known work in a field of endeavor that would have prompted variations of its use in another field of endeavor, inasmuch as the results are completely predictable.

CONCLUSION AND ORDER

The rejection of claims 1-6 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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